Docket No.: 4600-0117PUS1
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Susumu YAMAGUCHI et al.

Application No.: 10/563,425 | Confirmation No.: 6373

Filed: June 1, 2006 | Art Unit: 1781

For: BODY TASTE IMPROVER COMPRISING DECOMPOSED SUBSTANCES OR THEIR EXTRACTS OF LONG-CHAIN HIGHLY UNSATURATED FATTY ACID | Examiner: C. A. Paden

APPEAL BRIEF

MS APPEAL BRIEF-PATENTS
Commissioner for Patents
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August 17, 2011

Sir:

INTRODUCTORY COMMENTS

Acknowledging that the Final Office Action was issued March 14, 2011, and the filing of the Notice of Appeal on June 14, 2011, Appellants request reconsideration and reversal by the Honorable U.S. Board of Patent Appeals and Interferences of the Final Rejection of the present claims, which issued on March 14, 2011.

The fees required under § 41.20(b)(2), and any required petition for extension of time for filing this brief and associated fees, are addressed in the accompanying TRANSMITTAL OF APPEAL BRIEF.

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This brief contains items under the following headings as required by 37 C.F.R. § 41.37 and M.P.E.P. § 1205.2:

I. REAL PARTY IN INTEREST

As evidenced by the Assignments recorded at real/frame 16847/0531 and 16810/0489, the Real Party in Interest in the present application is the assignee of record, J-Oil Mills, Inc., of Tokyo, Japan.

II. RELATED APPEALS AND INTERFERENCES

An Appeal has been filed in co-pending Application Serial Number 10/513,593. The '593 Application has been denoted as a co-pending application due to the close relationship between the subject matter disclosed therein and the present claims, although it is not in the same patent family as the present application.

III. STATUS OF THE CLAIMS

Claims 15-21 are pending. Claims 15-21 have been rejected. Claims 1-14 were previously cancelled.

IV. STATUS OF AMENDMENTS

All amendments presented by Appellants to date have been entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

THREE (3) INDEPENDENT CLAIMS ARE PRESENTLY APPEALED: CLAIMS 15, 16, AND 18. IN ADDITION, FOUR (4) DEPENDENT CLAIMS ARE APPEALED: CLAIMS 17, AND 19-21.

In this section, Appellants describe the subject matter recited in each of appealed claims 15-21.

For ease in understanding the amendments during prosecution we repeat the claims here with their support in brackets.

Claims 1-14 were previously cancelled.

Independent claim 15 reads as follows:

15. A method for improving the KOKUMI of food [page 4, lines 4-5, page 5, lines 7-11, and translation of "body-taste"] comprising adding to a food a decomposed substance [page 4, lines 27-29] of a vegetable fat and oil composition [page 6, lines 22-24], said composition consisting of a vegetable fat and oil and 1% by weight or more of an n-6 long-chain highly unsaturated fatty acid having 18 or more carbon atoms and 3 or more double bonds, or an ester thereof, [page 6, line 33 to page 7, line 3 and page 5, lines 14-16] wherein said decomposed substance is obtained by oxidation of said composition via heating. [page 7, lines 4-9]

Independent claim 16 reads as follows:

16. A method for improving the KOKUMI of food [page 4, lines 4-5, page 5, lines 7-11, and translation of "body-taste"] comprising adding an extract [page 7, lines 16-19] of a decomposed substance of a vegetable fat and oil composition [page 6, lines 22-24], said composition consisting of a vegetable fat and oil and 1% by weight or more of an n-6 long-chain highly unsaturated fatty acid having 18 or more carbon atoms and 3 or more double bonds, or an ester thereof, [page 6, line 33 to page 7, line 3 and page 5, lines 14-16] wherein said decomposed substance is obtained by oxidation of said composition via heating. [page 7, lines 4-9]

Dependent claim 17 reads as follows:

17. The method according to claim 15 or 16, wherein the n-6 long-chain highly unsaturated fatty acid is arachidonic acid or γ-linolenic acid. [page 5, lines 18-20]

Independent claim 18 reads as follows:

18. A method for improving the KOKUMI of food [page 4, lines 4-5, page 5, lines 7-11, and translation of "body-taste"] comprising adding to a food a decomposed substance of a vegetable fat and oil composition, said composition consisting of a vegetable fat and oil having one or more aldehydes, ketones, or alcohols and 1% by weight or more of an n-6 long-chain highly unsaturated fatty acid having 18 or more carbon atoms and 3 or more double bonds, or an ester thereof, wherein said decomposed substance is obtained by oxidation of said composition via heating.

Dependent claim 19 reads as follows:

19. The method according to claim 18, wherein said aldehydes are selected from the group consisting of pentanal, hexanal, 2-heptenal, 2-octenal, 2-nonenal, 4-nonenal, 2,4-nonadenal, 2,4-decadienal, 2,5-undecadienal, 2,4,7-decatrienal, and 2,4,7-tridecatrienal.

Dependent claim 20 reads as follows:

20. The method according to claim 18, wherein said ketones are selected from the group consisting of 2-heptanone, 3-octanone, 2-octanone, 3-octen-2-one, 2,3-octanedione, and 4-nonanone.

Dependent claim 21 reads as follows:

21. The method according to claim 18, wherein said alcohol is selected from the group consisting of 1-octen-3-ol, 2-methyle-3-octanol, and 1,2-heptanediol.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The Examiner has rejected claims 15-17 as being obvious over van Dorp (U.S. 3,686,003) and has rejected claims 17-21 as being obvious over van Dorp further in view of Kiritsakis (JAOCS 75(6)673, 1998). The claims 15-21 are argued separately in the following groups:

Claims 15 and 17;

Claim 16; and

Claims 18-21.

Thus, the groups of claims do not stand or fall all together.

VII. ARGUMENTS

SUMMARY OF THE KEY ISSUE

The invention is broadly directed to improving the taste of foods cooked with oils, such as fried foods and particularly improving the so-called "body taste" (also known as KOKUMI) of the foods. The "body taste" is the feeling of richness or "mouthfulness" of a food. Therefore, the present invention is particularly directed to improving the rich taste of foods cooked with comparatively low-fat oils, such as vegetable oils. The invention provides this improvement with an additive that is free of cholesterol and has a low content of saturated fatty acids. The desired taste improvement is achieved by the addition to a food of a decomposed substance of a vegetable fat and oil composition.

Claims 15-21 are directed to methods for improving the KOKUMI flavor of food comprising adding to a food a decomposed substance of a vegetable fat and oil composition, where the composition consists of a vegetable fat and oil and 1% by weight or more of an n-6 long-chain highly unsaturated fatty acid having 18 or more carbon atoms and 3 or more double bonds or an ester thereof, wherein the decomposed substance is obtained by oxidation of said composition via heating. Claims 17-21 additionally include specific aldehydes, ketones or alcohols.

The Examiner has rejected claims 15-17 as being obvious over van Dorp (U.S. 3,686,003) and has rejected claims 17-21 as being obvious over van Dorp further in view of Kiritsakis (JAOCS 75(6)673, 1998). The Examiner asserts that van Dorp teaches the addition of an n-6 long-chain highly unsaturated fatty acid having 18 or more carbon atoms and 3 or more double bonds to a vegetable fat and oil because van Dorp separately teaches (a) the addition of arachidonic acid and ethanol to chicken fat with subsequent boiling in water to form chicken soup, and (b) arachidonic acid can be diluted in "a bland fat and oil". Therefore, the issue is whether the method for improving the KOKUMI of food by adding to a food a decomposed substance of a vegetable fat and oil composition, said composition consisting of a vegetable fat and oil and 1% by weight or more of an n-6 long-chain highly unsaturated fatty acid having 18 or more carbon atoms and 3 or more double bonds, or an ester thereof is inventive.

ARGUMENTS REGARDING THE GROUPS OF CLAIMS

1. Arguments regarding Claims 15 and 17

a. The Examiner improperly concludes that van Dorp teaches adding to a food a decomposed substance of a vegetable fat and oil composition, said composition consisting of (i) a vegetable fat and oil and (ii) 1% by weight or more of an n-6 long-chain highly unsaturated fatty acid having 18 or more carbon atoms and 3 or more double bonds.

Appellants submit that the Examiner has made a factual error when she concludes that van Dorp teaches a composition consisting of vegetable fat and oil and arachidonic acid. Applicants submit that the fat and oil compositions of van Dorp do not "consist of a vegetable fat and oil and 1% by weight or more of an n-6 long-chain highly unsaturated fatty acid having 18 or more carbon atoms and 3 or more double bonds" as recited in the present claims. Instead, van Dorp discloses mixing chicken fat with a composition of ethanol which contains 10% by weight arachidonic acid. This mixture of three ingredients was then simmered in 800 cc of water for 7 minutes. Then, the entire mixture of chicken fat, ethanol, arachidonic acid, and water was added to the other ingredients (van Dorp, col. 7, lines 50-75).

The Examiner states: "Van Dorp uses the same method steps as the claims. The same acts in the same relation would be expected to provide the same result" (Office Action, March 14, 2011, page 4). However, van Dorp does not follow the same process steps as is presently claimed. In Example 20 of van Dorp, a composition with ethanol and arachidonic acid is added to chicken fat. This composition does not "consist of" a vegetable fat and oil and arachidonic acid as is recited in the claims.

Thus, it is very clear that van Dorp never adds a composition consisting of vegetable fat and oil and arachidonic acid to a food. Accordingly, van Dorp does not teach every step of the claimed method. For at least this reason, Appellants request that the rejection be overturned.

b. The Examiner improperly concludes that the chicken fat of Example 20 is a "diluent" for the arachidonic acid, such that it could be replaced with a vegetable fat and oil.

Appellants submit that the Examiner has improperly concluded that one of skill in the art would consider presently claimed vegetable oil to be equivalent to the diluent of van Dorp.

First, Appellants submit that the process of van Dorp is excluded by the claims because the present claims recite a composition consisting of the vegetable fat and oil and the n-6 fatty acid.

In Example 20 of van Dorp, a composition with ethanol and arachidonic acid is added to chicken fat. Column 3 of van Dorp discusses adding a flavoring compound or precursor to "a suitable diluent, for example an inert solvent, such as bland fat or oil, . . . water . . . such as are used as solvents in the pharmaceutical industry" (col. 3, lines 29-35). Thus, the solvent/diluent discussed in col. 3 of van Dorp is either the chicken fat or the ethanol. Accordingly, replacing the diluent of van Dorp with a vegetable fat and oil would leave either the ethanol or the chicken fat still to be added. This embodiment is excluded from the present claims.

Moreover, one skilled in the art reading van Dorp would not be motivated to replace the chicken fat of van Dorp with vegetable fat and oil because vegetable fat and oil do not meet the operative purpose of van Dorp. According to MPEP §2143.01(V) (citing *In re Gordon,* 733 F.2d 900 221 U.S.P.Q. 1125 (Fed. Cir. 1984) "If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." The stated purpose of van Dorp is to improve the natural flavor of chicken fat or chicken meat (see van Dorp col. 1, lines 30-32 and col. 3, lines 49-52).

In contrast, the present method is not trying to enhance an existing flavor but instead develops a totally new flavor in the foodstuff, which is recognized in the art as KOKUMI. As discussed in the Amendment of July 8, 2010, vegetable oil alone does not have a chicken flavor (page 6). The tastes found in the vegetable oil (i.e., the volatile compounds) also have a particular strength, as recited in the Amendment of July 8, 2010, pages 6-9. Though slightly oxidized arachidonic acid alone might have a chicken flavor, the strength of the volatile compounds from arachidonic acid is not greater than those from a vegetable fat and oil (see Amendment, July 8, 2010, Table pages 7-8). This prevents the taste of the arachidonic acid (i.e., the slight chicken-like taste) from being prevalent, or possibly even noticed as a separate taste. The combination of the arachidonic acid with the vegetable fat and oil would not lead to a

"chicken flavor" (Amendment, July 8, 2010, page 9). Instead, a totally new blended taste is developed.

This totally new *blended* flavor in the foodstuff is recognized in the art as KOKUMI. KOKUMI has been described as a new flavor having "thickness, continuity and mouthfulness" (Amendment, July 8, 2010, page 4, Yamamoto and FoodTechnology (August 2004), all attached, Exhibits A-C).

For these additional reasons Applicants submit that van Dorp, alone or in combination with Kiritsakis, fails to teach every feature of the claimed methods.

c. The Examiner improperly assumes that the flavor obtained by the present methods is the same as that obtained by van Dorp.

The Examiner states: "Van Dorp uses the same method steps as the claims. The same acts in the same relation would be expected to provide the same result" (Office Action, March 14, 2011, page 4). As discussed above, the process described in van Dorp is different from the claimed process because van Dorp never uses a composition consisting of a vegetable fat and oil and the fatty acid.

Appellants also submit that the Examiner's statement demonstrates that she has improperly applied the legal doctrines of inherency and optimization of ranges to conclude that the presently claimed methods are obvious.

The Examiner's rejections at times seem to be based on a combination of the doctrines of inherency and routine optimization of ranges. However, "the fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art)" MPEP § 2112.

Appellants respectfully submit that the Examiner has not established that the claimed KOKUMI "necessarily flows" from the teachings of van Dorp. Appellants have also provided scientific evidence demonstrating that the claimed taste is different than the taste described in van Dorp.

Additionally, the flavor obtained is not inherently the same. Applicants have demonstrated that the composition of the claims has a different chemical makeup than a compound obtained with van Dorp (see Amendment of July 8, 2010, page 7). In addition, the strength of the flavors (obtained from the volatile compounds) indicates that the flavor of arachidonic acid (the weak chicken-like flavor) does not predominate over the taste of the composition (Amendment, July 8, 2011, page 9, and Table on pages 7 and 8).

The present invention claims a method which adds to a foodstuff a composition consisting of (i) a vegetable oil and fat and (ii) a n-6 long chain fatty acid having 18 or more carbons. Because the composition consists of (i) and (ii), optimization could only alter the ratios of the two components and would not allow for the addition of some other component, such as ethanol.

The addition of ethanol or chicken fat to the claimed composition would therefore lead to a composition having a different chemical makeup, and a different taste. Thus, the claimed result not only fails to "necessarily flow" from van Dorp, the actual result of the method of the present claims embodies an unobvious difference from the compositions of van Dorp. Accordingly, reliance on the doctrine of inherency is improper.

Furthermore, in the optimization of ranges the "parameter must first be recognized as a result-effective variable, *i.e.*, a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation." MPEP 2144.05. Here, there is no evidence that changing the diluent in van Dorp would have any effect on the flavor of the food additive. In fact, the diluent is described as an "inert solvent such as a bland fat or oil," presumably because it would be expected to be neutral and not change the flavor (van Dorp, col. 3, line 32-33). Also, there is no suggestion in van Dorp that changing the diluent would lead to a composition which includes the claimed aldehydes, ketones, and alcohols.

Furthermore in considering the Kiritsakis reference, a practitioner would not consider olive oil to be "bland". Finally, one of skill in the art would, therefore, not have combined the olive oil of Kiritsakis with the composition of van Dorp because olive oil is not considered to be

"bland" by one of skill in the art. Consequently, the Examiner's justification for combining van Dorp with Kiritsakis is insupportable.

2. Arguments regarding Claim 16

Claim 16 is directed to a method for improving the KOKUMI of food comprising adding **an extract** of a decomposed substance of a vegetable fat and oil composition, said composition consisting of a vegetable fat and oil and 1% by weight or more of an n-6 long-chain highly unsaturated fatty acid having 18 or more carbon atoms and 3 or more double bonds, or an ester thereof, wherein said decomposed substance is obtained by oxidation of said composition via heating.

The Examiner asserted in the Office Action of April 8, 2010, that van Dorp discloses that "[t]he decomposition product is added to chicken noodle soup based [sic], which examiner considers to be consommé and also to be a water extract" (page 2).

However, in van Dorp there is no "extract" from the mixture of ethanol, arachidonic acid, chicken fat and water. Instead, the entire mixture of chicken fat, ethanol, arachidonic acid, and water is added to the other ingredients (van Dorp, col. 7, lines 50-75).

In the Specification, the term "extract" is defined. Specifically, "The 'extract of decomposed substances' in the present specification means materials obtained by extraction of the decomposed substances of the long-chain highly unsaturated fatty acid and/or the ester thereof, and the fat and oil comprising them" (Specification, page 7, line 16-19). While "extraction" may be done with water (Specification, page 7, line 20) there still must be "extraction." Instead, in van Dorp, the entire contents of the arachidonic acid, ethanol, chicken fat and water mixture are added to soup.

In addition, there must also be extraction from the composition consisting of the long-chain highly unsaturated fatty acid and the fat and oil. As discussed above, no such composition is disclosed in van Dorp.

Appellants therefore submit that the Examiner has failed to established that the prior art references teach every feature of the claimed invention. Appellants request that the rejection be withdrawn.

3. Arguments regarding Claims 18-21

Claims 18-21 are rejected based on the combination of both van Dorp and Kiritsakis.

Claim 18 recites: "A method for improving the KOKUMI of food comprising adding to a food a decomposed substance of a vegetable fat and oil composition, said composition consisting of a vegetable fat and oil having one or more aldehydes, ketones, or alcohols and 1% by weight or more of an n-6 long-chain highly unsaturated fatty acid having 18 or more carbon atoms and 3 or more double bonds, or an ester thereof, wherein said decomposed substance is obtained by oxidation of said composition via heating." Claims 19-21 recite specific aldehydes, ketones, or alcohols.

The Examiner broadly states: "if one of ordinary skill in the art wanted to optimize the flavor of the food, it would have been obvious to modify the flavor with the alcohol of the claims" (*see* Office Action, dated September 7, 2010, page 5). Applicants responded to this broad assertion, stating:

> The Examiner provides no explanation for the proposition that one of skill in the art would know how to "optimize the flavor" of the food by adding these aldehydes, alcohols or ketones (presumably present in the vegetable oil or fat) to arachidonic acid. There are infinite ways to optimize the flavor of food, and van Dorp says nothing about what "body taste" is or how to optimize for this flavor. Thus, van Dorp provides no guidance on how one of skill in the art would optimize the flavor of food by adding aldehydes, ketones, or alcohols; especially if one of skill in the art is given no guidance on whether to add the specific alcohol of claim 21. (see Amendment of February 4, 2011, page 7)

The Examiner responded "[I]t is the examiners [sic] position that olive oil would optimize the flavor of the Van Dorp by providing a complex array of flavoring ingredients to the flavoring composition" (Office Action, page 7). Applicants maintain that the Examiner's position is insufficiently supported. There is no mention in van Dorp that adding olive oil would enhance the chicken flavor, let alone lead to a different flavor or a complex flavor. Aside from

enhancing chicken flavor, van Dorp does not provide any guidance on how the flavor should be optimized.

Applicants therefore submit that one of skill in the art would not find the present invention obvious in view of the cited prior art. Applicants request that the present rejections be overturned.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Leonard Svensson, Reg. No. 30,330 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Dated: August 17, 2011

Respectfully submitted,

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APPENDIX A: CLAIMS APPENDIX

15. A method for improving the KOKUMI of food comprising adding to a food a decomposed substance of a vegetable fat and oil composition, said composition consisting of a vegetable fat and oil and 1% by weight or more of an n-6 long-chain highly unsaturated fatty acid having 18 or more carbon atoms and 3 or more double bonds, or an ester thereof, wherein said decomposed substance is obtained by oxidation of said composition via heating.

16. A method for improving the KOKUMI of food comprising adding an extract of a decomposed substance of a vegetable fat and oil composition, said composition consisting of a vegetable fat and oil and 1% by weight or more of an n-6 long-chain highly unsaturated fatty acid having 18 or more carbon atoms and 3 or more double bonds, or an ester thereof, wherein said decomposed substance is obtained by oxidation of said composition via heating.

17. The method according to claim 15 or 16, wherein the n-6 long-chain highly unsaturated fatty acid is arachidonic acid or γ-linolenic acid.

18. A method for improving the KOKUMI of food comprising adding to a food a decomposed substance of a vegetable fat and oil composition, said composition consisting of a vegetable fat and oil having one or more aldehydes, ketones, or alcohols and 1% by weight or more of an n-6 long-chain highly unsaturated fatty acid having 18 or more carbon atoms and 3 or more double bonds, or an ester thereof, wherein said decomposed substance is obtained by oxidation of said composition via heating.

19. The method according to claim 18, wherein said aldehydes are selected from the group consisting of pentanal, hexanal, 2-heptenal, 2-octenal, 2-nonenal, 4-nonenal, 2,4-nonadenal, 2,4-decadienal, 2,5-undecadienal, 2,4,7-decatrienal, and 2,4,7-tridecatrienal.

20. The method according to claim 18, wherein said ketones are selected from the group consisting of 2-heptanone, 3-octanone, 2-octanone, 3-octen-2-one, 2,3-octanedione, and 4-nonanone.

21. The method according to claim 18, wherein said alcohol is selected from the group consisting of 1-octen-3-ol, 2-methyle-3-octanol, and 1,2-heptanediol.

APPENDIX B: EVIDENCE APPENDIX

Exhibit A: Amendment filed July 8, 2010

Exhibit B: Yamamoto et al. (2009)

Exhibit C: FoodTechnology

Exhibit D: Zhou

APPENDIX C: RELATED PROCEEDINGS

An Appeal Brief has been filed in co-pending Application 10/513,593.